**Amendments to the Specification:**

Please replace the paragraph beginning at page 4, line 17, with the following rewritten paragraph:

--Figure 2B shows the structural details of test patterns 202X and 202X' (and, by analogy test patterns 202Y and 202Y'). As shown, test pattern 202X includes an upper grating 204U and a lower grating 204L. Test pattern 202X' includes an upper grating 204U' and a lower grating 204L'. Gratings 204U, 204L, 204U' and 204L' have the same pitch [[106]]. Gratings 204U and 204U'are formed in an upper layer 208U and gratings 204L and 204L' are formed in a lower layer 208L. Upper and lower layers 208 may be separated by one or more intermediate layers 210. Patterned layers 208L and 208U may be formed on the same layer sequentially, in which case there are no intermediate layers 210. For example, both gratings may be etched at the zero-level on a silicon wafer to qualify a lithography projector. There may be zero or more layers between the substrate of the wafer and patterned layer 208L.--

Please replace the paragraph beginning at page 10, line 9, with the following rewritten paragraph:

--Figure 6A shows an implementation of test patterns 202X and 202X' that uses the grating layer structure of the present invention. For this implementation, test pattern 202X (and, by analogy, test pattern 202X') includes an upper grating 604U and a lower grating 604L. Upper grating 604U is formed in an upper layer 608U and lower grating 604L is formed in a lower layer 608L. Upper and lower layers [[608]] <u>608U and 608L, respectively,</u> may be separated by zero or more intermediate layers 610. Upper grating 604U and lower grating 604L have the same pitch. As evident in this particular example, different line profiles (i.e., shape, height and width) may be used for upper grating 604U and lower grating 604L. The grating lines in Figures 6A and 6B are shown to have rectangular cross sections for simplicity. In reality, the cross sections of all grating lines are different than rectangles.--

Please replace the paragraph beginning at page 12, line 4, with the following rewritten paragraph:

--The grating layer structure just described overcomes the dead-zone ambiguity of prior art overlay targets. In some cases, however, the use of four test patterns may be undesirable in

terms of area required or computational effort. To reduce the number of test patterns, it is possible to use the grating layer structure within an overlay target that includes three test patterns. As shown in Figure 7A, an implementation of this type of overlay target 700 includes test patterns 702X, 702Y and 702XY. Each test pattern [[702]] is a grating formed as a series of lines. Each test pattern has a different orientation—test patterns 702X and 702Y are oriented so that their lines are perpendicular to each other. Test pattern 702XY is oriented so that its lines are oriented at a forty-five degree angle with respect to both test pattern 702X and test pattern 702Y.--

Please replace the paragraph beginning at page 15, line 28, with the following rewritten paragraph:

--Figure 8 shows a flow chart 800 for the algorithm. At 802, physical properties of test patterns are expressed in terms as a few as possible unknown and adjustable parameters. At 804, an initial estimate is provided for the vector of unknown parameters, $\xi$. When similar measurements are performed repeatedly, the results of the previous measurement can be used as the initial guess for the current measurement. At 806, the theoretical optical response of each test pattern is calculated for each value of the independent measurement variable(s) $\nu$ (such as wavelength). Step 806 is suitable for parallel computation. At 808, the norm $\chi(\xi)$ of the fit error is calculated according to Eq. 5. At 810, the magnitude of $\chi(\xi)$ or possibly its rate of decrease are compared to previously set thresholds. If $\chi(\xi)$ is sufficiently low (goodness of fit sufficiently high) or if $\chi(\xi)$ has not decreased in the past several steps, or if a previously set upper bound for number of iterations or computation time is reached, the iteration is terminated at 812. If $\chi(\xi)$ is sufficiently small, $\xi$ is the vector of measured parameters (output). Otherwise, the parameter vector $\xi$ is updated to minimize $\chi(\xi)$ according to one of the following algorithms for nonlinear minimization: Levenberg-Marquardt, Gauss-Newton, steepest-descent, simulated annealing, or genetic algorithms (see step 814).--